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**Draft United States Proposal for Agenda Item 1.13.1 in
Response to Resolution 131 (WRC-97) Regarding pfd Limits for
Non-Geostationary Satellites Operating in the Bands 10.7 – 12.75 GHz and
17.7 – 19.3 GHz for the Protection of the Fixed Service**

United States of America

[DRAFT] PROPOSALS FOR THE WORK OF THE CONFERENCE

Proposal for Agenda Item 1.13.1 in Response to Resolution 131 (WRC-97)

- 1.13 on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97)**, **131 (WRC-97)** and **538 (WRC-97)**:
- 1.13.1 to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;

Background Information:

Resolution 131 (WRC-97) *invited ITU-R* “to study, as a matter of urgency, the appropriate power flux-density values to be applied to non-GSO networks in the bands 10.7 – 12.75 GHz and 17.7 – 19.3 GHz to ensure protection of the fixed service without unduly constraining the development of either type of network.” **RES131** *requested WRC-00* “to review the provisional pfd limits referred to in *resolves* 1 (of RES131) based on the results of the studies carried out by ITU-R.” The ITU-R has confirmed the limits in the band 10.7 – 12.75 GHz and determined a new set of limits to replace the provisional limits established by WRC-97 in 17.7 – 19.3 GHz.

Proposal:

USA/x/nnn

MOD**TABLE S21-4**

Frequency band	Service*	Limit in dB(W/m ²) for angle of arrival (δ) above the horizontal plane			Reference
		0°-5°	5°-25°	25°-90°	Bandwidth
10.7-11.7 GHz	Fixed-satellite (space-to-Earth) , geostationary-satellite orbit	-150 ¹⁴	$-150 + 0.5(\delta - 5)^{14}$	-140 ¹⁴	4 kHz
<u>10.7-11.7 GHz</u>	<u>Fixed-satellite (space-to-Earth), non-geostationary-satellite orbit</u>	<u>-126</u>	<u>$-126 + 0.5(\delta - 5)$</u>	<u>-116</u>	<u>1 MHz</u>
11.7-12.5 GHz (Regions 1 and 3) 12.5-12.75 GHz (Region 1 and Region 3 countries listed in Nos. S5.494 and S5.496) 11.7-12.72 GHz (Region 2) 11.7-12.2 GHz (Region 3) 12.2-12.7 GHz (Region 2)	Fixed-satellite (space-to-Earth), non-geostationary-satellite orbit	-148¹⁴ <u>-124</u>	$-148 + 0.5(\delta - 5)^{14}$ <u>$-124 + 0.5(\delta - 5)$</u>	-138¹⁴ <u>-114</u>	4 kHz <u>1 MHz</u>
12.2-12.5 GHz ⁷ (Region 3) 12.5-12.75 GHz ⁷ (Region 1 and Region 3 countries listed in Nos. S5.494 and S5.496)	Fixed-satellite (space-to-Earth), <u>geostationary-satellite orbit</u>	-148 ¹⁴	$-148 + 0.5(\delta - 5)^{14}$	-138 ¹⁴	4 kHz
17.7-19.3 GHz ^{7,8}	Fixed-satellite (space-to-Earth) Meteorological-satellite (space-to-Earth)	-115 ^{aa} or -125 <u>$\frac{-115 - X}{X}$</u> ¹²	$-115 + 0.5(\delta - 5)^{aa}$ or $-125 + (\delta - 5)$ <u>$\frac{-115 - X + ((10 + X)/20)(\delta - 5)}{X}$</u> ¹²	-105 ^{aa} or -105¹²	1 MHz

ADD^{aa} S21.16.6bis

These limits apply to emissions of space stations on meteorological-satellites and on geostationary FSS satellites. These limits also apply to emissions of space stations on non-geostationary FSS satellites which were in operation or for which complete coordination or notification information had been received by the Radiocommunication Bureau: by 17 November 1995, in the bands 18.8-19.3 GHz; or by 22 November 1997, in the bands 17.7-18.8 GHz.

MOD¹² S21.16.6

~~These values shall apply provisionally only to emissions of space stations on non-geostationary satellites in networks operating with a large number of satellites, that is systems operating with more than 100 satellites (see Resolution 131 (WRC-97)).~~ These limits apply only to emissions of space stations on non-geostationary FSS satellites for which complete coordination or notification information has been received by the Radiocommunication Bureau after 17 November 1995 in the bands 18.8-19.3 GHz or after 22 November 1997 in the bands 17.7-18.8 GHz. The function X is defined as a function of the number, N, of satellites in the non-GSO FSS constellation as follows:

– for $N \leq 50$ $X = 0$ (dB)

– for $50 < N \leq 288$ $X = \frac{5}{119}(N - 50)$ (dB)

– for $N > 288$ $X = \frac{1}{69}(N + 402)$ (dB) (WRC-00)

SUP¹⁴ S21.16.8

SUP¹⁵ S21.16.9

SUP RES131

~~RESOLUTION 131 (WRC 97)~~

~~**Power flux density limits applicable to non-geostationary fixed-satellite service systems for protection of terrestrial services in the bands 10.7-12.75 GHz and 17.7-19.3 GHz**~~

Reasons:

This Proposal replaces the provisional pfd limits in Table **S21-4** with the values that, as a result of extensive ITU-R studies, were agreed by WP 4-9S and JTG 4-9-11. **ADD^{aa} S21.16.6bis**, and a corresponding change in **MOD¹² S21.16.6**, specify the dates of application of the pfd limits in conformance with the dates established in **RES131**. **S21.16.8**, **S21.16.9**, and **RES131** are no longer required.
